

# **EXHIBIT A**



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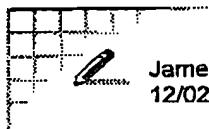
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12/02/2001 15:55

To: Justin Moodie <Justin@AGENCY.COM>  
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Subject: Re: Project 3

Our Ref. A73-1

Dear Justin,



Attached are the draft patent application and figures: MSLFigs3-6.vsd.pgp; MSLFigs1&2.vsd.pgp;



MSL Patent.doc.pgp

I assume we will be first filing in the US via Kenyon & Kenyon and I have therefore drafted the application in US format. If so, I will need confirmation of the inventors' full names and addresses so that the necessary forms can be prepared.

Please call me to discuss when you've had an opportunity to read the draft application.

Best wishes,

James Cross  
Jenkins  
T: 020 7963 1510

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## Communications System with Database Management

### Field of the Invention

The present invention relates to a system, method, computer program and apparatus for enabling users to add entries to a personal database and/or to receive information based on entries in a personal database, wherein the database is preferably accessible over multiple different types of communications channel.

### Background of the Invention

The popularity of mobile telephones and other digital communication devices has led to various commercial applications in which users send messages to the network based on information they have obtained on the move and receive a service based on that information. For example, the SCANTM system allows users to send product codes of items such as books or recordings as SMS messages, receive price quotes for the items, and order the items via their mobile devices.

### Summary of the Invention

According to one aspect of the present invention, there is provided a database system which is accessible via multiple communications channel types so as to store data entered by users, retrieve the data, and/or to retrieve lists of data according to codes entered by the users. Preferably, the data can be retrieved over wireless channels so that it is available wherever it is needed. In one example, the data comprises a shopping list or list of recipes.

According to another aspect of the invention, there is provided a system for collecting or transferring data or performing transactions according to codes transmitted by users over a wireless network. An advantage of this system is that codes may be displayed with advertising material and users may enter codes when they see the advertising material so as to register their interest, obtain more information or conduct a transaction.

**Brief Description of the Drawings**

Specific embodiments of the present invention will now be described with reference to the accompanying drawings, in which:

5 Figure 1 is a schematic diagram showing shopping list management functions in an embodiment of the invention;

Figure 2 is a schematic diagram showing recipe management functions in the embodiment of the invention;

Figure 3 shows some operations which can be performed using the web interface of the embodiment;

10 Figure 4 is a schematic layout diagram of a web page generated by the web interface;

Figure 5 shows some operations which can be performed using the SMS interface of the embodiment; and

Figure 6 is a diagram of the database schema in the embodiment.

15

**Detailed Description of Preferred Embodiments**

In the specific embodiment, access to a common database DB is provided via multiple communications channels to provide shopping list management functions, as shown in Figure 1, and recipe management functions, as shown in

20 Figure 2.

The common database DB is stored on a database server, for example using SQL Server. The interface between the database and the communications channels are provided by an SMS server, a web server, a WAP server, an interactive TV server and a voice server; these may be distributed amongst different physical server computers or one or more of them may be collocated on the same server.

25 The common database DB stores, for each user, a database of information which is compiled in response to instructions and/or information sent by the user over one or more of the communications channels. The database may also be interrogated by the user using some or all of these communications channels. In the specific embodiment, the database relates to shopping list and recipe items, but this is only one example of an application of the database.

The diagram of Figure 1 is divided into planning environment functions PE and shopping environment functions SE. In the planning environment, the user adds shopping list items to their personal database, using one or more of the communication channels described below.

- 5        The user may use a web-enabled interactive television WTV to access (T10) a site on the interactive TV server or web server. Items available for selection are displayed and may be added to the database by filling in check boxes. Alternatively or additionally, a text search may be performed for the desired items, which are then selected for addition to the shopping list.
- 10      The user may compile a shopping list on a mobile computer such as a personal digital assistant PDA or on a web-enabled personal computer WPC, and the shopping list may be synchronised (I10) between the two. The shopping list may be transmitted to the database DB either via the personal computer WPC (I20) or the PDA (I30).
- 15      The user may call a specified number on any conventional telephone TEL to access (V10) the voice server, which runs voice recognition software. The user enters an identity code, either by voice or by dialling numbers, and dictates items to the voice server for addition to their personal database. The items may be repeated back to the user by means of speech synthesis software, for confirmation of the order.
- 20      The user may send (S40) an SMS message from an SMS-enabled mobile telephone ST to a designated number of the SMS server. The SMS message contains the command 'ADD' followed by a list of items, delimited by commas. The SMS server responds (S50) with a message confirming that the items have been added to the user's personal database. The user is identified automatically by the SMS server from the user's number which is transmitted automatically as part of the SMS message.
- 25      The user may add items to the shopping list by means of an internet-enabled refrigerator IF or other device, incorporating a barcode scanner. The user scans the barcode on the packaging of an item to be reordered, the refrigerator IF accesses (I40) the database over the Internet and transmits the bar code data together with a prestored code identifying the user. The bar code data may be

converted to other data identifying the item using a lookup table, so that the data identifying the item is stored in a standard format.

5 In the shopping environment SE, the user accesses the database DB to retrieve their shopping list, using any one or more of the communications channels described below.

10 Using the SMS-enabled telephone ST, the user may send (S10) an SMS message including the command 'LIST' to the designated number of the SMS server. The SMS server retrieves the list of items from the user's personal database and transmits (S20) the list of items to the telephone ST in one or more SMS messages, depending on the total length of the message. The SMS server then deletes the list of items from the database DB. If any items are not purchased, the user must resubmit them (S30), using the 'ADD' command as in step S40.

15 The user may access (W10) the shopping list on the personal database using a WAP-enabled mobile telephone WP. The list is displayed using WAP protocols and the user may select which items to delete from the list. This option is useful when the user only has time to buy key items.

20 The user may use a web-enabled kiosk WK to access (I50) their personal database to display and modify their shopping list. The user swipes a card through a card-reader on the kiosk WK to provide identifying information, which is then used to gain access to the user's personal database. The kiosk WK may be located within a retail outlet and the card may be a loyalty card for the retail outlet. The user may download (I60) the list of items onto their PDA so that it can be viewed while shopping. The PDA may use a short-range local wireless communication system such as Bluetooth™ to interact with transmitters, positioned around a store, which broadcast the items available in their vicinity. An application running on the PDA compares the broadcast items to the items on the stored shopping list and alerts the user when there is a match, preferably by highlighting the items on the shopping list which match.

25 30 Figure 2 shows some of the shopping list management functions, using the same reference numerals, and also ~~shops~~ recipe management functions as will now be described.

The common database contains records of recipes which are supplied (I30) by content providers. Each record includes one or more short identifying phrases (e.g. 'Thai chicken'), a list of ingredients for that recipe and instructions for the recipe, optionally including one or more video clips.

- 5        In the planning environment PE, before shopping (BS) the user may send (S60) an SMS message to the SMS server containing a code identifying a specific recipe stored on the database. For example, the recipe may be printed in a magazine M together with an identifying code. The database server fetches the corresponding recipe record and adds that record to the user's personal database.
- 10      The use of identifying codes or 'offline bookmarks' to add one or more items to the user's personal database may be extended to other scenarios. For example, the user may view a cookery demonstration on an interactive television and select an option to order the ingredients for the recipe being demonstrated, for example by clicking a button on a remote control. The identifying code is
- 15      received by the interactive television as part of the broadcast and is submitted to the central database DB in response to the user's order; the user does not have to enter the code explicitly. This function is not limited to the ordering of ingredients and may be used in conjunction with broadcast advertisements to order or indicate an interest in the item being advertised.
- 20      The 'offline bookmark' may be used to operate an electronic coupon scheme. In response to the user transmitting, either implicitly or explicitly, the code of an item to the database DB, a coupon code may be entered into the user's personal database. The coupon code may be retrieved by the user and redeemed using the kiosk WK to print a paper coupon or manually on presentation of the
- 25      coupon code at a retail outlet. The coupon code may be related to the identity of the user, such as their loyalty card number, to prevent the user from forwarding the code to others for their own use. The coupon code may include a time stamp to restrict the period within which it can be used.
- 30      The 'offline bookmark' may be used to make purchases with online retailers who hold prestored account and ordering details for the user ... [is this new? See SCAN website]
- The 'offline bookmark' may be used to quickly request detailed information based on advertisements. For example, the user may see a health

insurance advertisement which includes an identity code. The user sends an SMS message containing the identity code to the SMS server. The SMS server retrieves the user's and advertiser's details stored in the database DB and referenced using the identity code and the user's mobile number from which the message was sent. The user's address is then sent to the advertiser so that they can forward the detailed information to the user. Alternatively, the detailed information may be stored electronically on a database and forwarded as an e-mail to the user.

In the shopping environment SE, the user may send (S70) an SMS message to the SMS server containing the identifying phrase for a desired recipe. The database server returns the list of ingredients from the corresponding recipe record, and the list is transmitted (S80) to the user's SMS-enabled mobile phone ST.

After shopping (AS), the user may access (I70) the common database using a web-enabled personal computer WPC, to retrieve instructions from the recipe record which the user has previously accessed, at either steps S60 or S70. Alternatively, the instructions may be accessed over an interactive television. The instructions may include a series of video clips corresponding to stages in the execution of the recipe. Each video clip is displayed in turn under the user's control, so that each stage may be carried out before proceeding to the next video clip.

Figure 3 shows some sample operations which can be performed by the user using the web-enabled personal computer WPC. Rounded rectangular boxes represent actions performed by the user; hexagonal boxes represent HTML forms, and rectangular boxes represent HTML pages. The key to Figure 3 is as follows:

- 10: The user adds an item to their list
- 20: The user adds an item to the form and submits it
- 30: The updated list is shown with confirmation of the change
- 40: The user deletes an item from their list
- 50: The user selects the checkbox of that item and submits the form
- 60: The updated list is shown with confirmation of the changes

30

- 70: The user views their list
- 80: The current list is displayed
  
- 5                   90: The user views recipe instructions
- 100: The current recipes of the week are shown as links; the user selects a link
- 110: Ingredients and instructions for the selected recipe are shown
  
- 10                 120: The user views instructions for their favorite recipe
- 130: A favorite recipe list is shown as links; a link is selected
- 140: Ingredients and instructions for the selected recipe are shown
  
- 15                 150: The user adds a current recipe to their favorites list
- 160: The user selects a current recipe and clicks 'add to favorites'
- 170: The updated favorites list is shown with confirmation of the change
  
- 20                 180: The user deletes a recipe from the favorites list
- 190: The user selects a favorite recipe by clicking on a check box and clicking 'delete'
- 200: The updated favorites list is shown with confirmation of the change

Figure 4 shows an outline layout of the web page: column C1 displays the user's current list of ingredients, column C2 contains a form allowing items to be added to the list, and column C3 displays current recipes of the week RW and the user's favorite recipes FR.

Figure 5 shows some sample operations which can be performed by the user using the SMS-enabled mobile telephone ST to communicate with the SMS server. Rounded rectangular boxes represent user actions; document boxes represent paper documents; message boxes represent SMS <sup>messages</sup> boxes; and database boxes represent database actions. The key is as follows:

- 210: The user adds an item to their list by sending an SMS
- 220: an SMS message including 'ADD' and the list of items is sent

- 230: the user receives an SMS message confirming the update or  
signaling an error.
- 5                   240: The user adds a recipe from a magazine to their list of favorites  
250: the user sees the recipe in the magazine with an SMS code and a  
telephone number  
260: the user sends the code to the designated number  
270: the user receives an SMS message confirming the update or  
signaling an error.
- 10                  280: The user sends an SMS request to view their list  
290: the user sends an SMS message containing 'list'  
300: the user receives one or more SMS messages with the list items  
310: all the items are removed from the user's database.
- 15                  320: The user adds an item from a magazine to their list  
330: the user sees a magazine advert with an SMS code and a telephone  
number  
340: the user sends an SMS message with the code to the designated  
number
- 20                  350: the user receives an SMS message confirming the update or  
signaling an error.
- 25                  360: The user requests the ingredients for a recipe of the week;  
370: the user sends an SMS message containing a recipe type code: 'fish',  
'veg', 'meat', 'diet' or 'chick'  
380: the user receives an SMS message with the recipe title and the  
ingredients.
- 30                  390: The user sends an SMS message requesting the names of the recipes  
of the week  
400: the user sends an SMS message containing the word 'recipes'

410: the user receives an SMS message with the recipe titles and their corresponding codes.

420: The user requests the names of this week's recipes

5 430: The user sends the SMS message 'favs'

440: The user receives one or more SMS messages with the recipe titles and corresponding letters.

450: The user requests the ingredients of the recipe of the week

10 460: The user sends an SMS containing the word 'fav' and the corresponding letter

470: the user receives one or more SMS messages with the recipe title and ingredients.

15 Figure 6 shows the database schema of the database DB, including primary keys PK and foreign keys FK1, FK2. A 'ShoppingList' table contains ingredient fields and a 'UserID' field identifying the user. The 'UserID' field refers to a 'UserNames' table which contains, for each UserID, the password and mobile phone number ('phone\_num') and optionally the first name ('fname') and 20 surname ('sname'). A 'favourites' table contains a favourites identity field ('fav\_id') as the primary key, a recipe identity field ('recipe\_id') which refers to a 'Recipes' field, a user ID field ('User\_id') which identifies the user to whom the recipes relate, and a favourites position field ('fav\_position') which stores the order in which the recipe should be ranked. A 'Recipes' table contains a recipe 25 ID ('recipe\_ID') field as the primary key, and fields which indicate the name, URL which links for example to a demonstration of the recipe, whether that recipe is recipe of the week, the recipe type of the recipe, and an 'ad' code which is the advertised code used to add the recipe to a user's database. An 'Ingredients' table contains an ingredient identity field ('ingredient\_id') as the 30 primary key, and fields indicating the name of the ingredient, the recipes in the recipe table which use that ingredient, and an 'ad' code which is the advertised code used to add the ingredient to a user's personal database.

The database is able to run the following procedures:

- 1) Add an ingredient to a user's shopping list given the name of the ingredient and the user ID.
- 2) Add an ingredient to a user's shopping list given the 'ad' code of the ingredient and the user ID.
- 5 3) Add a recipe ID from the recipe table to the favorites list for a specified user.
- 4) Check a given user ID and password against a stored user ID and password and indicate whether they match.
- 5) Delete a specified ingredient from a user's shopping list.
- 10 6) Delete a specified recipe from a user's list of favorites.
- 7) Return the list of ingredients for a recipe specified by a position in the user's favorites list.
- 8) Return the list of ingredients for a recipe specified by an 'ad' code.
- 9) Return the name of a recipe at a given position of the user's list of favorites.
- 15 10) Return the user ID for a given phone number.
- 11) Return the list of favorites for a given user.
- 12) Return a list of the current recipes of the week.
- 13) Return the list of ingredients in the user's shopping list.

20 The SMS server uses Perl scripts to process the data received via SMS and to send an SMS in response, if required. The Perl scripts are able to perform the following actions:

- 1) ← When a request for a user's shopping list is received, query the database to find that user's list and send an SMS containing that list. If the list exceeds 160 characters in length, the data is split across multiple messages.
- 25 2) Add an item to a user's shopping list.
- 3) Return the user's favorite recipes via SMS.
- 30 4) Return the recipes of the week via SMS.
- 5) Return lists of ingredients for a favorite recipe or recipe of the week, via SMS.

- 6) Add an ingredient to the user's shopping list or a recipe to the user's favorites according to an 'ad' code received via SMS.

The above embodiments are described purely by way of example and  
5 modifications may be made without departing from the spirit and scope of the present invention.

**What is claimed is:**

1. A method of storing and retrieving a list of items on a database over a plurality of communications networks, including:
  - a. entering, at a first communications terminal, a set of data items;
  - b. transmitting said data items, together with a first user identity code, to a database server over a first communications network;
  - c. transmitting a retrieval request, together with a second user identity code, from a second, wireless communications terminal to said database server over a second, wireless communications network; and,
  - d. if said first user identity code matches said second user identity code, receiving at least some of said set of data items.
2. A method according to claim 1, wherein steps a and b comprise the steps of:
  - i. entering, at said first communications terminal, one or more first data items;
  - ii. transmitting said one or more first data items, together with said first user identity code, to the database server over the first communications network;
  - iii. entering, at said first communications terminal, one or more second data items; and
  - iv. transmitting said one or more second data items, together with said first user identity code, to the database server over the first communications network.
3. A method of storing and retrieving a list of items on a database, including:
  - a. receiving, from a first communications terminal, a set of data items and a first user identity code;
  - b. indexing said data items on said database according to said first user identity code;

- c. receiving a retrieval request and a second user identity code from a second, wireless communications terminal;
  - d. matching said second user identity code to said first user identity code;
  - 5 e. retrieving at least some of said data items corresponding to the first user identity code; and
  - f. transmitting said retrieved data items to said second, wireless communications terminal.
- 10 4. A method according to claim 3, wherein steps a and b comprise the steps of:
- i. receiving over the first communications network from said first communications terminal, one or more first data items together with said first user identity code;
  - 15 ii. indexing said one or more first data items on said database according to said first user identity code;
  - iii. receiving over the first communications network from said first communications terminal one or more second data items together with said first user identity code; and
  - 20 iv. indexing said one or more second data items on said database according to said first user identity code.
- 25 5. A system for storing and retrieving lists of data items, comprising:
- a. a database; and
  - b. a plurality of different communication channel interfaces for providing an interface between the database and a respective plurality of different communication channel types, including one or more wireless channel types;
- 30 whereby each of a plurality of users is enabled to transmit one or more data items for storage on the database via any of the communication channel interfaces and to retrieve said one or more data items via any of the communication channel interfaces.

6. A method of storing and retrieving information on a database over one or more communications networks, including:
- a. entering a code at a first wireless communications terminal,
  - b. transmitting said code over a wireless communications network to a database server; and
  - c. receiving, in response to said code, a set of data items derived from said code.
7. A method of retrieving information from a database over one or more communications networks, including:
- a. storing a plurality of sets of data and corresponding list identity codes;
  - b. receiving a request code over a wireless communications network from a first wireless communications terminal;
  - c. retrieving one of said sets of data from the database according to said request code; and
  - d. transmitting said set of data to said first communications terminal or to said second communications terminal.
8. A method according to claim 6 or 7, wherein the retrieval request is transmitted by or received from said second communications terminal which comprises a fixed terminal.
9. A method according to claim 8, wherein the second communications terminal transmits said set of data to a said first, wireless communications terminal or to a third, wireless communications terminal.
10. A method according to claim 7, wherein said second communications terminal includes a card reader for reading said second user identity code.

11. A method according to claim 6 or 7, wherein said set of data includes an alphanumeric list of items.
12. A method according to claim 6 or 7, wherein said set of data includes 5 one or more video clips.
13. A system for retrieving lists of data items, comprising:  
a. a database storing a plurality of lists of data items and corresponding list codes;  
b. at least one communication channel interface for providing an 10 interface between the database and a corresponding communication network; and  
c. at least one user terminal for communication over said communication network;  
15 wherein the communication channel interface is arranged to receive a code from the at least one user terminal, to match the code to a list code in the database and to transmit the corresponding list of data items to the user terminal.
- 20 14. A method of storing and retrieving information on a database over one or more communications networks, including:  
a. receiving a code together with a user identity code over a wireless communications network from a wireless communications terminal;  
b. retrieving, in response to receipt of said code, a data record 25 corresponding to the first user identity code; and  
c. transmitting said data record to a data receiver other than the wireless communications terminal.
- 30 15. A method according to any one of claims 6, 7 or 14, wherein said code is displayed in the vicinity of the first, wireless communications terminal.

16. A computer program arranged to perform a method according to any one of claims 1, 3, 6, 7 and 14.
17. A carrier bearing a computer program according to claim 16.

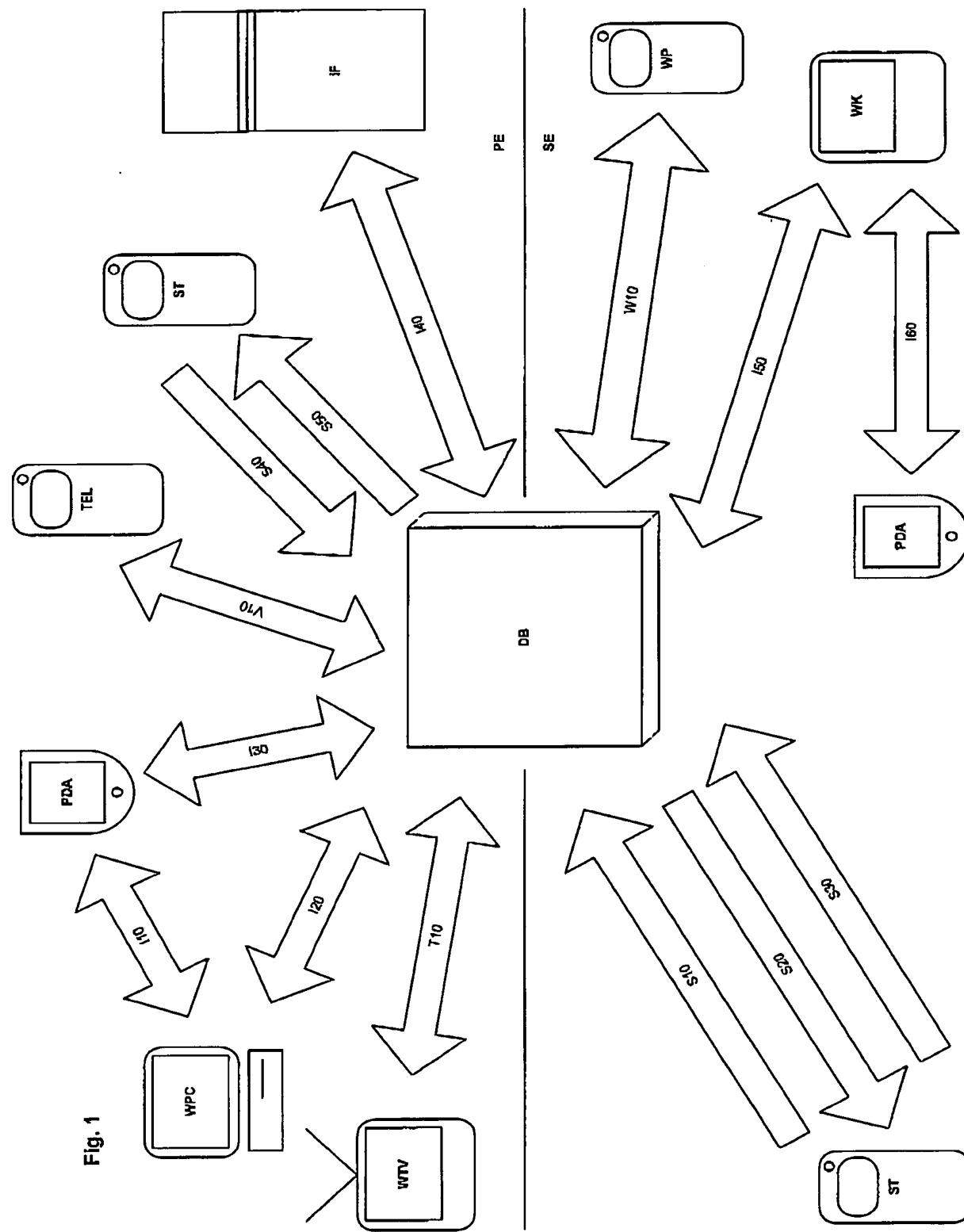
**Abstract****Communications System with Database Management**

A database system is accessible via multiple communications channel types so as to store data entered by users, retrieve the data, and/or to retrieve lists of data

5 according to codes entered by the users. Preferably, the data can be retrieved over wireless channels so that it is available wherever it is needed. In one example, the data comprises a shopping list or list of recipes. Alternatively, the system may be used for collecting or transferring data or performing transactions according to codes transmitted by users over a wireless network. An advantage

10 of this system is that codes may be displayed with advertising material and users may enter codes when they see the advertising material so as to register their interest, obtain more information or conduct a transaction.

[Fig. 1]



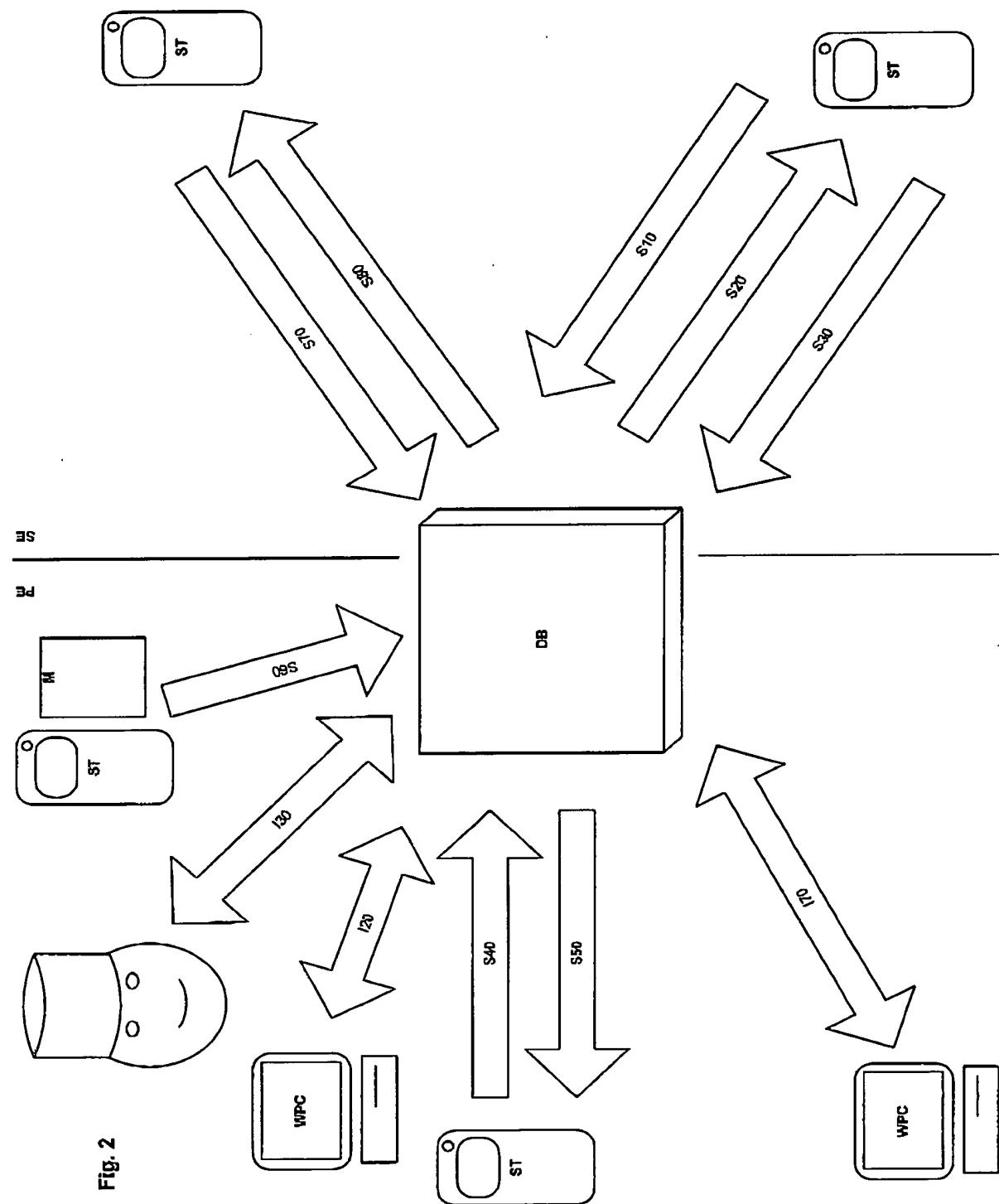
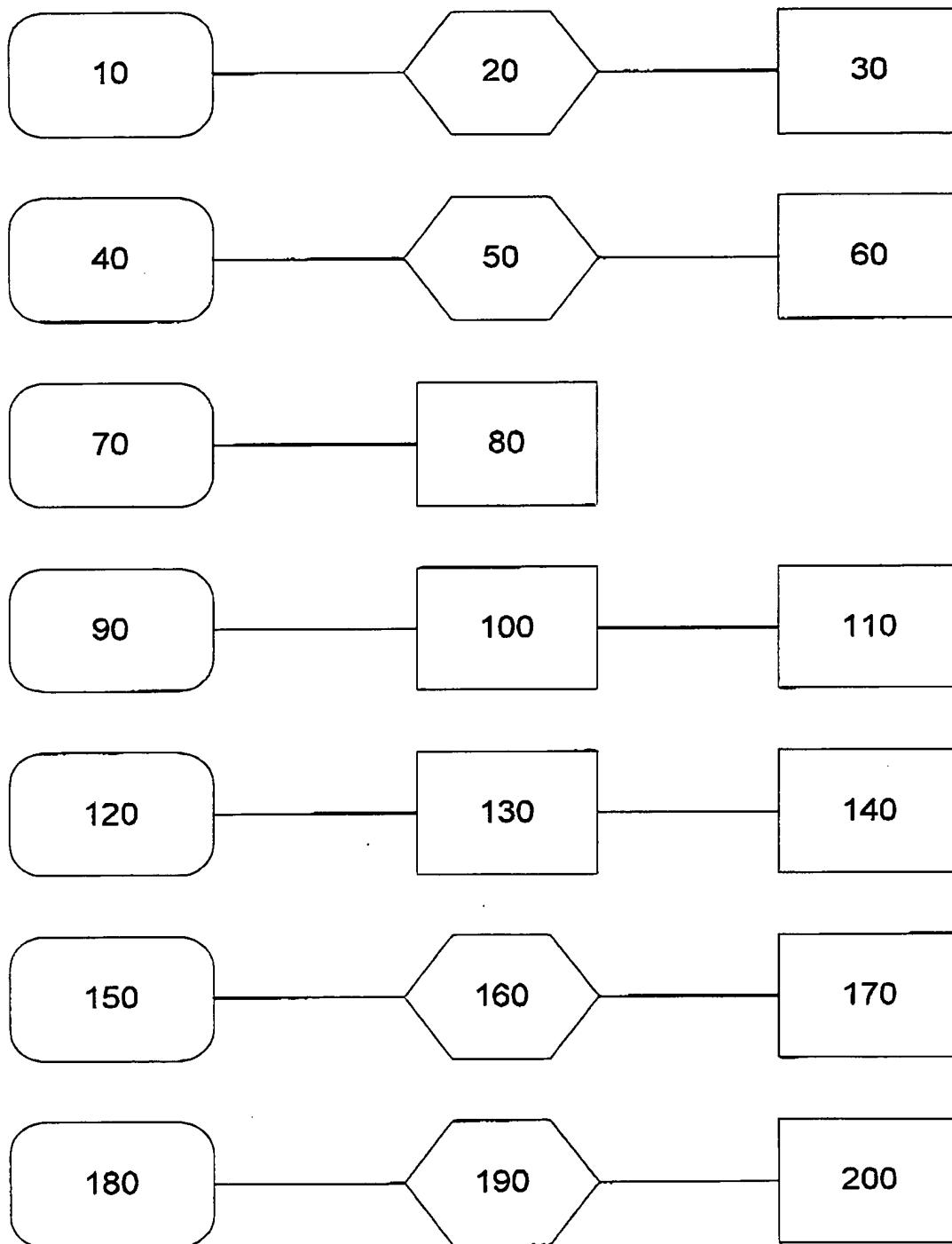


Fig. 2



Fig. 3





**Fig. 4**

<b>C1</b>	<b>C2</b>	<b>C3</b>
		—RW— <input type="checkbox"/>
		_____ <input type="checkbox"/>
		_____ <input type="checkbox"/>
		_____ <input type="checkbox"/>
		_____ <input type="checkbox"/>
		—FR— <input type="checkbox"/>
		_____ <input type="checkbox"/>
		_____ <input type="checkbox"/>
		_____ <input type="checkbox"/>
		_____ <input type="checkbox"/>



**Fig. 5**

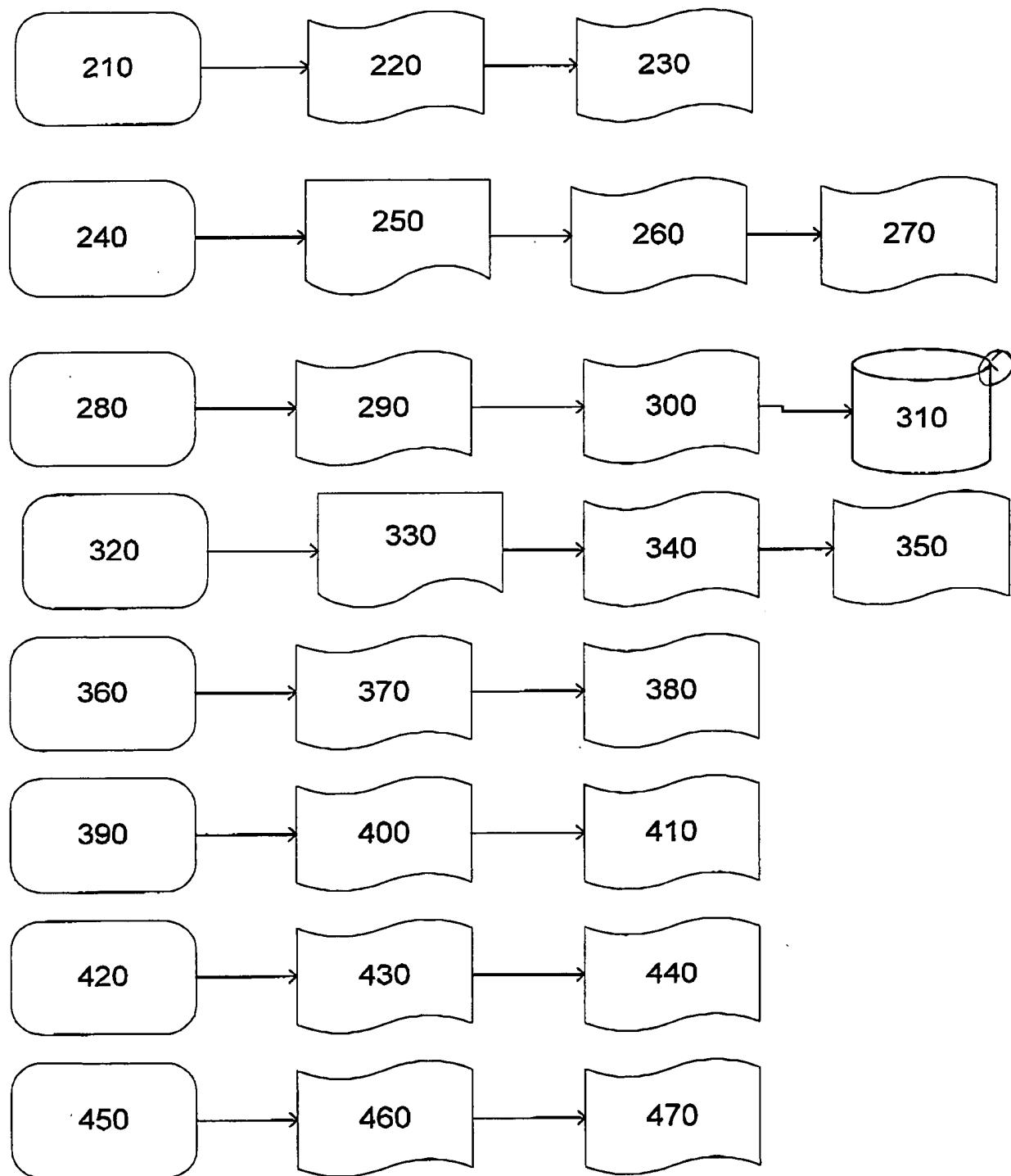




Fig. 6

